ICTD Working Paper 206

Taxation of Fisheries in Kenya: Neither Improving Management nor Raising Revenue?

Giovanni Occhiali and Olivia Okello

August 2024

ICTD Working Paper 206

Taxation of Fisheries in Kenya: Neither Improving Management nor Raising Revenue?

Giovanni Occhiali and Olivia Okello

August 2024

Taxation of Fisheries in Kenya: Neither Improving Management nor Raising Revenue?
Giovanni Occhiali and Olivia Okello
ICTD Working Paper 206
First published by the Institute of Development Studies in August 2024

ISBN: 978-1-80470-230-7
DOI: 10.19088/ICTD.2024.084

Available from:
The International Centre for Tax and Development at the Institute of Development Studies, Brighton BN1 9RE, UK
Tel: +44 (0) 1273 606261 Fax: +44 (0) 1273 621202
E-mail: info@ictd.ac.uk
Web: ictd.ac/publication
X: twitter.com/ICTDTax
Facebook: facebook.com/ICTDTax
LinkedIn: linkedin.com/company/ICTDTax

Taxation of Fisheries in Kenya: Neither Improving Fisheries nor Raising Revenue?

Giovanni Occhiali and Olivia Okello

Summary

The Kenyan government believes fisheries have significant potential for development. Yet their development faces many challenges – some of which are connected to a lack of the data needed to ensure their effective management. We do not, for example, have reliable information on the total annual catch. It is therefore impossible to establish whether the existing system of levies and charges is broadly right from the perspective of revenue collection and long-term sustainability of fisheries. This study uses a review of guiding legal documents, in-depth interviews, and analysis of data on domestic taxes collected by the Kenya Revenue Authority.

We conclude that the current taxation of fisheries in Kenya does not contribute to either their effective management or generating revenue. This is due to a combination of: (a) a fragmented regulatory and legislative environment, leading to unclear institutional mandates; (b) the inappropriate use of levies and charges purely to raise revenue rather than to ensure sustainable harvests; (c) little attention to sector compliance with general tax obligations, including registration, filing, and payment of taxes such as income tax or value added tax (VAT). These problems are deep-rooted, and connected to the existing legal, institutional, and operational framework. There are some immediate policy steps that could be taken to realise more of the potential for development of the sector. These include ensuring better coordination between national and county-level governments and institutions, and focusing efforts to enforce tax collection on the richest actors in the value chain.

Keywords: fisheries; natural resource taxation; Kenya; fiscal decentralisation; sustainable development.

Giovanni Occhiali is a Research Fellow at the Institute of Development Studies and the International Centre for Tax and Development, where he leads work on environmental and climate taxes, as well as working on different projects relating to the taxation of high net worth individuals and tax administration in general.

Olivia Okello is a manager with the Kenya Revenue Authority. She is involved in influencing policy and improving operational efficiencies through tax and financial intelligence management, research, knowledge transfer, and capacity building. She has vast experience in projects related to illicit financial flows and tax crime investigations.

Contents

Acknowledgements

We would like to acknowledge the support of the Kenya Revenue Authority, the Kenyan Marine and Fisheries Research Institute, the Kenya Maritime Authority, and the Kenya Fisheries Service, the county governments of Mombasa and Homabay, and the Beach Management Units of Mombasa, Kilifi, and Alero. We would also like to thank three anonymous reviewers for their extensive comments on an earlier draft of this study.

Acronyms

BMU	Beach management unit
KFS	Kenya Fisheries Service
KMA	Kenya Maritime Authority
KMFRI	Kenyan Marine and Fisheries Research Institute
KRA	Kenya Revenue Authority
PIN	Personal identification number
VAT	Value added tax

1. Introduction

More than 25 million people are directly and indirectly employed in the fisheries and aquaculture sectors across sub-Saharan Africa (FAO 2020). These account for between 1.3 per cent (de Graaf and Garibaldi 2014) and 2.2 per cent (World Bank 2012) of regional Gross Domestic Product (GDP). The sector has long been identified as significant for development. It both absorbs rural labour, providing a source of livelihood to those without other employment (Béné, Hersoug and Allison 2010; Béné *et al*. 2016), and raises hard currency for state coffers through exports and fishing agreements (Belhabib *et al.* 2015; Seto 2017). At the same time, fish stocks in the continent are under enormous pressure, with many already overexploited (FAO 2020; Zeller *et al.* 2020). Because the sector is open to new entrants, it does not generate significant resource rents[1] (Cunningham *et al.* 2009; Willmann and Kelleher 2009).

The fisheries situation in Kenya is typical of the region. The Kenyan Government believes the fisheries and aquaculture sectors have the potential to play a more substantial role in national development in the future (Republic of Kenya 2007). They currently employ 1.6 million people, and contribute 2 per cent of total foreign exchange earnings (KMFRI 2018). Yet the Kenyan fisheries sector is facing a variety of challenges:

- Fish stocks are reported to be declining in Lake Victoria, which accounts for the majority of the catch.
- The bioeconomic data required to develop appropriate management strategies is not available.
- There is frequent illegal, unreported, and unregulated fishing (KMFRI 2018; Republic of Kenya 2024b).

The current estimate of the sector's contribution to the domestic economy – 0.5 per cent of GDP – is probably very low, as the catch data is of poor quality (KMFRI 2018). The total annual catch estimate has not changed in a decade (Ministry of Fisheries Development 2008), despite a probable doubling of the number of people working in the sector (Ardjosoediro and Neven 2008).

Currently, no information is available about the taxes and fees collected from the sector (KMFRI 2018) – a common situation across Africa (Occhiali 2023). This is highly problematic. It contributes to underestimating the true value of fisheries, and makes it harder to develop evidence-based policies for economic support. Most sectoral fees – from vessel licences to fishing permits – go towards the

[1] A general definition of resource rent is the excess economic value arising from the exploitation of a natural resource left after all exploitation costs, including compensation to all factors of production, have been taken into account.

management of fisheries. Only taxes levied under general fiscal legislation (e.g. corporate income tax, VAT, and Pay-As-You-Earn) contribute to generating revenue (Occhiali 2023). However, both management fees and general taxes are often levied on the same base, or on strictly related ones. For example, landing fees at local beaches, cesses on fish levied by subnational governments,[2] and fishers' income taxed by the revenue authority are all based on fish catch.[3] Ideally, all these charges and taxes should be considered together when assessing their incidence on different economic actors, or their contribution to the sustainable management of fisheries. In the specific case of Kenya, this means the taxes, charges, and levies established at the national, county, and sub-county level should all be considered holistically. The constitutional reform of 2010 made fisheries a devolved matter, and the current institutional framework is laid out in the 2016 *Fisheries Management and Development Act* (Republic of Kenya 2016) and the *Fisheries Management and Development Regulations 2024* (Republic of Kenya 2024a).

This paper addresses the question: does the taxation of fisheries in Kenya extract an appropriate amount of revenue for general use, and contribute to their sustainable management? We rely on three different sets of information to answer this question. First, we analyse existing policies and regulations for the sector to assess the role of different institutions – including who has the right to collect fees and taxes from the sector, and for what. Second, we conducted 13 in-depths interviews with public and private stakeholders in the fisheries and aquaculture sectors at both the national and county level,[4] and 1 focus group discussion with fishers.[5] Third, we analysed tax administrative data from the Kenya Revenue Authority (KRA), as well as published and unpublished data from

[2] Fish cesses are levied directly on fishers at the moment of landing.

[3] '"Fisher" means every person employed or engaged in any capacity or carrying out an occupation on board any fishing vessel, including persons working on board who are paid on the basis of a share of the catch but excluding pilots, naval personnel, other persons in the permanent service of a government, shore-based persons carrying out work aboard a fishing vessel and fisheries observers' (The Fisheries Management and Development Act, Ch. 378: 13).

[4] We held interviews with two officials from the Kenya Revenue Authority (KRA), one official each from the Kenya Fisheries Services (KFS), the Kenya Maritime Authority (KMA) and the Kenyan Marine and Fisheries Research Institute (KMFRI), one official from the Mombasa County Government and two from the Homa Bay County Government, a senior representative of the Beach Management Units Association, three members of the Alero Beach Management Unit, and a manager from an industrial scale aquaculture farm. All interviews were conducted between May and June 2023, and lasted between one and one and a half hours. Two were conducted online, and recorded with the consent of the interviewees. All others were conducted in person. Two follow-up interviews were carried out online in May 2024, following the gazetting of the long-awaited Fisheries Regulations.

[5] The focus group discussion was held in Mombasa, and was attended by one member of the executive committee of the Mombasa Old Town Beach Management Unit (male), one of the youth leaders of the same BMU (male), five fishers from the same BMU (all males), one fish trader (female), and two '*Mama Karangas*' (fish friers (both female)).

two county governments. Our analysis mostly focuses on fisheries. We also comment on aquaculture in relation to its interaction with fisheries management, and to compare the level of compliance with general fiscal legislation. Future studies might want to focus more on the aquaculture sector.

It is important to note that one of the authors is employed by the KRA. In theory this could have an impact on the position taken by our respondents regarding tax compliance in the sector. As the paper shows, this does not seem to have been the case – all fishers interviewed were very forthcoming in describing the low level of compliance of – and KRA's current approach to – the sector. However, some respondents may have been influenced by the position of the interviewers. Accessing data from government institutions other than the KRA has been challenging, either because they were in hard copy (Mombasa County), or we needed data from institutions that could not respond within the study timeframe (Kenya Maritime Authority (KMA)).

Our analysis shows that, for a combination of reasons, the current tax treatment of fisheries does little to mobilise revenue from the sector, or to ensure its sustainable exploitation. First, many of the supporting regulations required to make the *2016 Fisheries Management and Development Act* applicable remained in draft form for almost a decade, and were only gazetted in March 2024. In their absence, institutional actors managing the sector are charging what they were before promulgation of the Act, what they have decided to on their own, or nothing at all.

This regulatory vacuum has led to a lack of coordination between the various levels of government and public institutions with stewardship responsibilities towards the sector. First, some of the institutions do not have enough funding to carry out their mandate. Others do not clearly distinguish between revenue that should be statutorily earmarked for fisheries management, and what can be kept for general use. Second, due to the dispersed nature of fisheries and aquaculture, the KRA has never paid particular attention to their compliance with general fiscal obligations, such as income tax and VAT. Consequently, the number of taxpayers registered in these sectors (2,471) is significantly lower than those estimated to be operating in them (over 110,000). Only a small proportion of those registered (5.6 per cent-5.9 per cent) ever pay tax. Fiscal support towards fisheries and aquaculture appears to be unorganised – exemptions and subsidies are scattered across various policy instruments, on a poorly defined list of inputs. These are approved by line ministries on an ad hoc basis, rather than through automatic qualification.

Given this situation, the taxes and fees levied on these sectors are not likely to deliver from either a revenue or management perspective. Improving the status quo will require a thorough revision of the existing institutional structure, and enforcement of the various regulatory measures that have just been gazetted.

This will include creating structures to coordinate all the actors in fisheries across various level of government – this is a common problem in managing fiscally decentralised sectors (Martinez-Vaquez, Lago-Peñas and Sacchi 2017). One component of this coordination should be to require all agencies issuing licences and permits to sectoral operators to collect the information required by the KRA to ensure fishers' tax compliance. In turn, the KRA could focus its enforcement efforts on wealthier actors – such as boat owners or fish traders – rather than embarking on a blanket enforcement campaign.

Recent literature on mass tax registration (Moore 2023; Gallien, Occhiali and van den Boogard 2023) indicates that widespread tax identification efforts are rarely worth the cost. They are likely to misfire when targeting low-income individuals with poor access to services, which describes many fishers. While boat owners can be expected to resist these efforts, and interviews indicate that some of them are well connected, they are the one category for which data for enforcement action should be readily available through the KMA.

Finally, if licences are meant to be for fisheries management rather than revenue, counties may not be the best institutions to issue them. Decentralised tax collection in rural areas has been described as 'messy' and grounded in informal practices, due to pervasive capacity and resource constraints (Prichard and van den Boogaard 2017). This describes the licensing of fisheries well – it is not clear whether counties can be expected to dedicate all licensing fees and charges to management of the sector, when there are many competing demands for expenditure. As other government bodies have the sustainability of fisheries at their heart, but lack the funding to steward this effectively, it may be better to consolidate all licensing in a single institution.

The remainder of the paper is organised as follows. Section 2 provides a short overview of the tax treatment of fisheries in low-income countries, with a focus on the limited Kenya-specific literature available. Section 3 briefly describes the current institutional set-up of the fisheries and aquaculture sectors, outlining the various roles and responsibilities of national and subnational institutions. Sections 4 and 5 present evidence on the use of tax instruments as a tool for fisheries management and to raise revenue, respectively, arguing that they are not currently effective in contributing to either of these. Section 6 presents some potential ways to improve this situation, and Section 7 concludes.

2. Literature review

Historically, much of the discussion about the tax treatment of fisheries took place in the context of high-income countries, and relates to their management rather than their contribution to revenue (Gordon 1954; Scott 1955; Moloney and Pearse 1979; Morey 1980; Clark 1980). Fisheries management requires many different activities centred around ensuring their sustainable exploitation, which involves constant monitoring of both environmental and socio-economic variables. The former include periodic measurement of fish stocks, identification of spawning areas, observation of migratory routes, and establishment of sustainable harvest levels. In turn, ensuring this sustainable harvest involves regularly surveying fishers' catches, harvesting methods, and fishing areas. All these activities must be carried out in all water bodies where fishing takes place. This requires the establishment of a dedicated institution, which must have appropriate levels of staffing with the necessary skills.

The cost of these management activities is substantial – up to 25 per cent of the value of landed catches in countries with good fisheries governance (Arnason, Hannesson and Schrank 2000). The substantial amount of subsidies received by the sector (Sumaila *et al.* 2010, 2016, 2019; Arthur *et al.* 2019; Merayo *et al.* 2019), suggests that fisheries in most high-income countries are likely to be net fiscal receivers (Occhiali 2023). Outside a handful of cases in which fisheries have been managed optimally, thereby exhibiting resource rents (Hannesson 2005; Gunnlaugsson and Saevaldsson 2016; Gunnlaugsson, Kristofferson and Agnarsson 2018), there are few economic justifications to levy sector-specific taxes over and above those included in general fiscal legislation (Gunnlaugsson *et al.* 2018). Governance of the sector is usually guaranteed through a combination of fishing licences and fees, expressly levied for its management. This is combined with general fiscal expenditure to fill potential funding gaps once these have been identified.

In low-income countries, and sub-Saharan Africa (SSA) specifically, most discussion about the tax treatment of fisheries is connected to charges and fees being used as a management tool (Occhiali 2023). A first strand of the literature focuses on how licences and fees can be used to restrict access to fisheries. This should be part of a wider economic rationalisation of the sector, to reduce overexploitation and ensure that fisheries are appropriately valued (World Bank 2004; Cunningham *et al.* 2009; Munro 2010; Welcomme *et al.* 2010). This position is critiqued by others, who emphasise the capacity of fisheries to absorb excess rural labour, offering livelihoods to those who lack other opportunities. In their view, closing access to fisheries would increase poverty more than it would improve economic efficiency (Jul Larsen 2003; Béné et al. 2010). In practice, fisheries management across SSA takes into account both these perspectives –

following wealth-based approaches on paper, but not stopping access to fisheries due to welfare considerations (Nunan 2014).

A second strand of the literature tries to assess the outcome of the widespread devolution of fisheries management – including the capacity to raise revenue – that took place across SSA from the 1980s. This devolution often entails dividing the management of fisheries between central government, local governments, and specially created committees (called beach management units (BMUs) in Kenya), in which all actors involved in the value chain are represented (Béné *et al.* 2003, 2009; Nunan 2014; Nunan, Hara and Onyango 2015). The power to raise at least some revenue from local resources is meant to foster democracy, and increase the sustainability of their use. BMUs are meant to guarantee some balance in representation of the interests of different actors (Béné et al. 2003, 2009; Ribot 2003). Whether this is achieved in practice is a different matter. While collection practices vary across the continent, BMUs often lack the human resources to collect what they are owed. Increased availability of local revenue does not automatically lead to better quality of management – accounting practices can be murky, and there are many opportunities for rent-seeking (Nunan 2014; Etiegni, Irvine and Kooy 2017). There also seems to be a risk that local government will see devolved fisheries management as an opportunity for revenue, rather than a responsibility (Béné *et al.* 2009; Nunan *et al.* 2015). This seems to be true both when fisheries are kept open access (Béné *et al.* 2003), and when attempts at economic rationalisation are made (Nunan 2014) – although there are some positive examples (Cinner and McClanahan 2015).

The third strand of the literature that is important in the context of this project is on subsidies towards the sector. Much of this literature focuses on calculating the amount of support received by fleets from high-income countries that fish in SSA waters. Without this support their operations would not be profitable (Kaczynski and Fluharty 2002; Witbooi 2008; Okafor-Yarwood and Belhabib 2020). Low-income countries subsidise their fishing fleets far less than high-income ones – although there is significant support to the sector – leading to inequitable fishing outcomes (Sumaila *et al.* 2016; Merayo *et al.* 2019; Arthur *et al.* 2019). The vast majority of subsidies are considered environmentally harmful, as they enhance fishing capacity with limited regard for the condition of fish stocks (Sumaila *et al.* 2016; Arthur *et al.* 2019).[6] However, some subsidies could have beneficial effects, such as support for the establishment of post-processing and value-adding activities (Witbooi 2008; Occhiali 2023).

While the Kenya-specific literature is more limited, a few studies are worth mentioning. First, some of the literature on fisheries co-management focuses on Lake Victoria, including the parts of its shore that belong to Kenya (Nunan 2014;

[6] Recently concluded negotiations at the World Trade Organization ban subsidies to fleets that are explicitly targeting overfished stocks - see Tipping (2020) and Tipping and Irschingler (2021).

Nunan *et al.* 2015; Etiegni *et al.* 2017), as well as coastal Kenya (Cinner and McClanahan 2015). Taken together, these show the complexity of trying to manage fisheries in a way that maximises their economic value, while keeping their capacity to act as a welfare buffer for the rural population. While there are some positive examples of co-managed marine reserves, all too often mandated institutional structures only exist on paper. There is frequent 'institutional bricolage' in the relationship amongst different organisations,[7] and a risk of elite capture at BMU level.[8]

More recent work on the topic looks further into the institutional relationship behind management of the sector. Nunan (2020) shows the wider political economy in the Lake Victoria region has a strong impact on fisheries management. Fisheries can be seen as a source of revenue when there is a lack of resources for decentralised institutions. In Kenya, this situation is exacerbated by an incomplete regulatory framework – both for central government agencies, and the relationship between central government and counties (Ogendi 2020). Consequently, there is frequent conflict between central and lower-level institutions over the control of fisheries resources and revenue (Mudliar and O'Brien 2021). Despite frequent double licensing, few services are provided to fishers (Kimani *et al.* 2020). Tensions between and within BMUs on access to, and control of, fisheries are also a feature of the Kenyan system that negatively influences resource management (Murunga, Partelow and Breckwoldt 2021).

[7] Institutional bricolage is process through which institutional arrangements arising from different contexts – such as formal rules derived from legislation and informal systems based on established social practices – are mixed to fit the existing circumstances regardless of their original purpose.

[8] This is especially relevant for women stakeholders, who are historically under-represented in the fisheries sector, being able to influence fisheries management and enjoy the results of their labour (see Geheb *et al.* 2008; Matsue, Daw and Garrett 2014).

3. The institutional set-up of Kenya fisheries and aquaculture

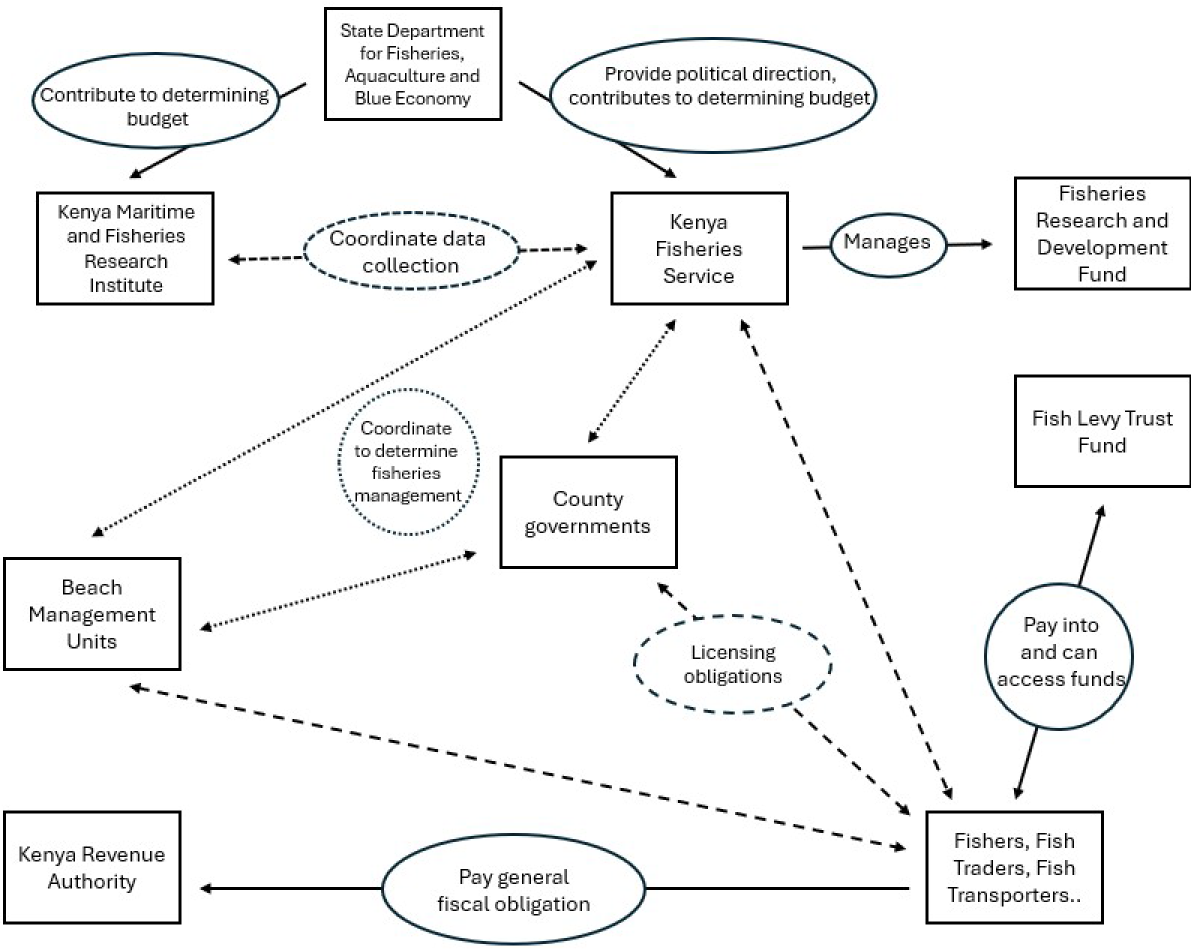
The current set-up of the fisheries and aquaculture sectors is set out in *The Fisheries Management and Development Act of 2016* (hereafter the Act). The Act institutes a variety of bodies under the direction of the State Department for Fisheries, Aquaculture, and the Blue Economy, as shown in Figure 3.1. The most important new institution, superseding the Directorate of Fisheries, is the Kenya Fisheries Services (KFS). This has been set up as a corporation, rather than a government department, to give it some autonomy. KFS has varied duties, described in section 9 of the Act. These include ensuring fisheries sustainable development (9a); formulating policies, standards, and regulations (9b-d); collecting and analysing fisheries data (9h); and raising revenue from, amongst others, levies and fees (9n).[9] The Act also creates two funds – the Fisheries Research Development Fund (section 27), and the Fish Levy Trust Fund (section 28). These receive endowments originating, respectively, from royalties paid to KFS, and direct compulsory contributions from anyone involved in fishing or related activities. The Act provides for the development of county-specific management measures (sections 34-36), and sets out the basis for regulation of BMUs in order to secure community participation in the management of fisheries (section 37).

The 2010 Kenyan Constitution made fisheries a devolved matter, so the Act needed to provide for the involvement of both counties and BMUs. However, the way in which the mandate is split between different institutions has already been described as 'create[ing] confusion over the roles and responsibilities of central and county governments' (Mudliar and O'Brien 2021: 30). This is because the Constitution mandates county governments to manage fisheries, and the central government to protect fishing 'with a view to establishing a durable and sustainable system of development' (Fourth Schedule, Part 1, 22a. Republic of Kenya 2010). Where exactly the difference between the two lies is unclear. Unfortunately, the Act does not create any clarity, defining 'fishing' as 'searching or taking of fish', and 'fishery' as 'one or more stocks of fish', or alternatively 'any fishing for such stocks' (section 2).[10]

[9] Despite its name, KFS also oversees the aquaculture sector. This has its own section of the Act (Part VIII), as well as separate licensing requirements covered in Part X.

[10] It is also interesting that the interpretation of the meaning of 'fisheries' we were given by both central institutions ('fisheries refers to managing the fish as a product after it is removed from water', KFS official), and by county governments ('fisheries is what happens when the fish leave the water', Homa Bay County official) is similar to that provided by some interviewees to Mudliar and O'Brien (2021), but does not find any support in the Act.

Figure 3.1 Institutional organisation of the Kenyan fisheries sector



Source: Authors' elaboration.

It is not surprising to hear that, five years after the interviews conducted by Mudliar and O'Brien (2021), stakeholders at all institutional levels are still confused:

> [Fishing and fisheries] are managed at different levels. However, when you look at it closely again, it is more or less the same thing.
>
> (Interview with official from KFS)
>
> [W]e all have quite similar functions, so there is overlap and it is not clear how to operate when we all have the same role, especially as we don't always coordinate.
>
> (Interview with official from Mombasa County)
>
> [C]onfusion originated with the devolution process [of the 2010 Kenyan Constitution], as no one knew how to deal with natural resources in that

> context, but counties wanted a share of the revenue from them, so they got in.
>
> (Interview with senior representative of BMUs Association)

It is interesting that a senior representative of the national BMU association connects the prevailing confusion with the decision to devolve natural resource management, in turn linked to the desire of counties to access new revenue sources. While this theme is more fully developed in the next section, it is worth noting that this confusion extends to the capacity to collect revenue between central and local institutions, and between different institutions at the local level. Similarly, who exactly should collect data from the fisheries sector at national level is not clear, with both KFS and the Kenya Marine and Fisheries Research Institute (KMFRI) having partially overlapping mandates.[11] Despite this overlap, neither institution has the funds needed to collect reliable data – both often have to rely on donors – leading to frequent underestimation of both the catch and number of operating boats, with obvious consequences on resource management.[12]

Much of this confusion, and overlapping or duplicated mandates, originates with an incomplete legal framework and many missing regulations.[13] This can be seen by both *The Fisheries Management and Development (Marine Fisheries) Regulations 2024* (hereafter *Marine Fisheries Regulations 2024*), and *The Fisheries Management and Development (Fish Levy Trust Fund) Order 2024* (hereafter *Fish Levy Trust Fund Order 2024*), which have only just been gazetted (Republic of Kenya 2024a). This is despite the former laying out regulations for almost all aspects covered by the Act, and the latter being needed to operationalise the Fish Levy Trust Fund, which until now existed only on paper. This legal confusion has affected BMUs, which have had to rely on repealed regulations for their activities for eight years.[14] The legislative vacuum was only removed in March 2024. Given how long this lasted, the confusion, and often frustration, felt by various stakeholders is quite understandable.

[11] Interview with official from KMFRI.

[12] Interviews with officials from KFS and KMFRI. The official from KFS interviewed said: ‘Currently, we are not able to give quotas in this part of the world, because we actually don't know exactly what is out there’.

[13] Interviews with official from KMFRI, KFS, and the chairman of the BMUs Association.

[14] Interviews with official from KFS and the chairman of the BMUs Association.

4. Fiscal instruments as management tools

As seen from the literature, virtually all charges on the fisheries and aquaculture sectors outside general fiscal legislation are usually meant to be directed towards their management. They are often not enough to cover the whole management bill. Given the current set-up of the sectors in Kenya, this implies that everything paid to BMUs, county governments, and KFS should be earmarked to ensure that fisheries resources are sustainably managed. However, the extent to which this is true in Kenya is highly debatable.

According to the Act, KFS currently collects revenue from a variety of different licensing activities – including boat registration, fishers' licences, import and export permits, and recreation vessels.[15] As mentioned in the previous section, the licence fees currently charged pre-date the Act, as the *Marine Fisheries Regulations 2024* have only just been gazetted. Similarly, no fish levy – potentially as high as 12 per cent of the value of landed fish for foreign industrial vessels – has ever been collected. This might change soon. All revenue collected by KFS flows directly into the consolidated revenue fund. The body operates with resources budgeted by the government, which are usually less than what KFS generates. This has led to a reliance on donor funding.[16] Hence, while KFS appreciates that:

> *[F]isheries licensing is not supposed to be for revenue collection, it's supposed to be a management measure… I license you when there is a space. When the stock is enough for 100 people, I license 100. If this stock is proved to be getting down, we license 50 boats only.*
>
> (Interview with official from KFS)

Even if KFS retained all the revenue collected, it would currently still not be enough to cover all its mandated activities.[17] This might change now the new regulations have finally been gazetted. According to our interviewees, up to now the main central government agency in charge of ensuring sustainable development of fisheries carried out its mandate thanks to donor funding.

Counties are the first level of devolved actors with the capacity to raise revenue that have management responsibilities. However, as already discussed, it is not exactly clear what these responsibilities are. For example, in Mombasa the

[15] Interview with official from KFS.

[16] Interview with official from KFS.

[17] Interview with official from KFS.

county government only provides capacity-building on modern fishing technologies, citing the lack of explicit co-management agreements for the lack of further support.[18] This limited interaction seems to be reflected in the amount of revenue collected from the sector. While we could not directly access revenue figures, which are kept manually in hard copy,[19] analysis of the county's *Annual Performance Review Reports* from 2018 to 2021 shows that only KSh19,788 (US$180.10) of revenue from fisheries was reported in 2021.[20] This is surprisingly low, given that Mombasa has 14 BMUs managing 50 landing sites (Menza and Mange 2020), and the Mombasa County Bills 2020 include 28 separate charges for actors in the sector (see Appendix Table A1.1).

On the other hand, Homa Bay County is planning to deliver weighing units (60 of which have already been installed), toilet facilities, and potentially electricity to the BMUs on their territory, even though providing some of these might be outside their mandate.[21] This greater engagement is matched by a greater relevance of revenue from fisheries for the county public finances. Table 4.1 shows that fisheries contributed on average 4.3 per cent of the county's own revenue between 2018 and 2023.

Table 4.1 Fisheries revenue collected, Homa Bay County, 2018-2023

Fiscal year	Fisheries revenue	% of total collection
2018/2019	4,071,105	4.55
2019/2020	5,356,153	4.52
2020/2021	5,187,524	4.27
2021/2022	6,830,580	4.66
2022/2023 (Q1-Q3)	5,476,766	3.43

Source: Authors' elaboration on unpublished data from Homa Bay County.

As we can see from these two cases, revenue from fisheries can vary – from being virtually irrelevant in Mombasa, to being one of the five most important sources of revenue in Homa Bay County. How contributions from the sector are conceived also seems to vary. In Mombasa, it appears to be squarely considered as revenue, despite its currently limited significance:

[18] Interview with official from Mombasa County.

[19] Interview with official from Mombasa County.

[20] We cannot however exclude that additional revenue from fisheries was misclassified and reported under other revenue headings.

[21] Interview with officials from Homa Bay County and fishers from Alero BMUs.

> *There are expectations that the fisheries department will contribute to revenue mobilisation for the county, but we do not have an official target per se. They ask us how much we think we could mobilise and we tell them, so we are the one setting it.*
>
> (Interview with official from Mombasa County government)

On the other hand, in Homa Bay there was an appreciation of the connection between collection from the sector and its expenditure:

> *We collected… as of April, KSh5.8 million in 2022-23 – these are from fish cess only, as the other charges go into trade revenue or business permit revenue. Even adding those, I doubt we ever got to KSh10 million. It is easy to see that these are not sufficient if one compares the requested expenditure on the sector.*
>
> (Interview with officials from Homa Bay County government)

While there appears to be some justification for the claim that counties see the fisheries sector chiefly as a source of revenue,[22] the picture is probably more complex. Where the sector represents a significant share of economic activity, as in Homa Bay, there is an understanding that revenue extraction has to be matched with some form of service provision. Some of the sectoral charges that are currently included in the Homa Bay County Bills 2020 are being enforced 'very gradually to maintain social peace',[23] which demonstrates an ad hoc and cooperative process to ensuring compliance. This is not unusual – subnational revenue collection outside metropolitan areas has been observed to be 'grounded in existing social relationships and collective norms' (Prichard and van den Boogaard 2017: 172), which can help to improve the state-society relationship. Something similar seems to be happening in this case, with legislated fees unofficially being waived in recognition that service provision is suboptimal.

The above quotes show that there are also differences in the types of charge. The fish cess, levied directly on fishers at the moment of landing, is seen as a substantially different levy to other types of charge for using the market use, or trading permits. These are also treated separately in the Homa Bay County Bills, whose fisheries schedule is in Appendix Table A1.2. While this separation is understandable from an accounting perspective, it demonstrates that the impact of introducing multiple charges[24] across the value chain on the price that fishers

[22] Interviews with officials from KFS and KMFRI.

[23] Interviews with officials from Homa Bay County government.

[24] '*The lack of alternative revenue sources is also a reason – there is not much outside of the primary sector that counties can get money from, so they are taxing these on the road, at the market, when they leave town, and then the fishermen wonder what is left for them*' (interview with official from KMFRI).

can ask for the primary product is probably not fully appreciated.[25] It is also interesting to note the differences between the fisheries schedules of Homa Bay and Mombasa County Bills – both the level and type of charges are substantially different. Given that their stewardship mandate is not, this reinforces the notion that management responsibilities are not a primary consideration when setting charges.

Finally, BMUs also have a mandate to raise revenue from their members, which include all actors in the fisheries sector – from fishers, to net-menders and fish traders. Each BMU sets its own by-laws, including specific charges, which usually include registration fees for its members, boat licensing, and fees for landing and weighing of fish[26] – two examples are presented in Appendix Table A1.3 (Alero BMU) and Appendix Table A1.4 (Kilifi BMU). Despite the difference in what each BMU decides to charge, their main source of revenue has historically been fish landed on their shores, which determines how much was available for management activities or welfare of its members.[27] However, given that some counties are already levying additional fees on landed catch, and KFS will soon do the same now that *The Fish Levy Trust Fund Order 2024* has been promulgated, BMUs have started considering whether they could increase their reliance on revenue from traders.[28] Regardless of the source of revenue, how much is collected is only known to members of each BMU. The books are subject to a 'social audit', where members verify whether collection figures seem reasonable. The results are not communicated to any other body, including their national association.[29] While this might appear to be less than ideal, members seem to appreciate BMUs' role as mediator with the multitude of organisations they have to interact with and get licenses from,[30] which is in turn recognised by various organisations.[31]

In summary, it does not currently appear that fiscal tools are contributing to better management of the fisheries sector. Neither of the funds established by the Act to support fisheries management is currently operational almost a decade after the Act was approved. The lack of up-to-date regulation also deprives KFS of some of the funds necessary to carry out its mandate, leading to a dependence on donor support. Counties, which have a constitutional mandate to steward

---

[25] 'The fisheries sector is highly interconnected: if you focus on processors, the cost will trickle down; if you focus on transporters, it will go up and down [along the value chain]', interview with fishers from Alero BMU.

[26] Interviews with senior representative of BMUs association, fishers at Alero BMU, and official from KFS.

[27] Interview with senior representative of BMUs association.

[28] Interview with senior representative of BMUs association.

[29] Interview with senior representative of BMUs association.

[30] Interview with fishers at Alero BMU, and FGD with Mombasa Old Town BMU.

[31] Interview with officials from KFS, KMA, and Homa Bay county government.

fisheries, have introduced their own specific charges. These do not seem to be explicitly connected to a management strategy, in part because their precise responsibilities are not clear. Some of these charges, such as market fees for fish traders, fall within subnational revenue to be used for general purposes. Others – such as licence fees for various operators – should be earmarked for fisheries management, and it is not clear whether this is currently the case. BMUs are the one actor that has been raising revenue explicitly for management, but they are seeing their main revenue base encroached on by county governments and KFS. While this might be disheartening, even some of the best managed fisheries are net revenue receivers. How much they currently contribute to the general fiscal purse, to which we turn in the next section, can be a powerful argument for more state support.

5. Fiscal instruments as (national) revenue-raising measures

Given how they are often conceived, it might be tempting to consider all charges and fees that economic actors in the fisheries sector pay to county governments to be part of their revenue contribution. However, many of these charges and fees are, at least in theory, a management tool. They should not be part of a consolidated revenue fund, but exclusively used to ensure the sustainable management of fisheries. Hence, while it might represent only a small – if not the smallest – proportion of what fishers pay to government bodies, it is interesting to assess the contribution of fisheries to the taxes paid under general legislation to KRA on its own merit. Given that many sectoral bodies appear to be starved of cash, greater understanding of how much tax revenue is collected from fisheries could support the case for making more funds available for management of the sector. The tax administrative data we accessed covered all taxpayers registered under the fisheries and aquaculture sector, as well as all taxes they paid. We analysed the data from 2016 to 2022, as we wanted to focus on the period after implementation of the Act.

There are 2,741 taxpayers registered in the fisheries and aquaculture sectors – 61.5 per cent in fisheries, and 38.5 per cent in aquaculture. The vast majority (78.7 per cent) are incorporated. There are more individuals in the aquaculture (32.4 per cent) than the fisheries (14.3 per cent) sector. The prevalence of incorporated taxpayers might explain why most actors in these sectors are managed by the Nairobi tax offices (18.6 per cent) rather than Kisumu tax office (11.7 per cent) – Kisumu is the largest Kenyan city near Lake Victoria. Registration takes place where management is located, rather than the activities. Comparing the figure of registered taxpayers in the fisheries sector – 1,685 – with the number of fishermen estimated to be active by KMFRI (14,000 (KMFRI 2018)), or by KFS (65,000 (KFS 2023)), suggests probable non-compliance. The same applies to the aquaculture sector, which has 1,056 registered taxpayers, against an estimated 70,000 aquaculture farmers (KFS 2023).

Two complementary explanations exist for the significant discrepancy between active and registered actors. The first has to do with the quality of sectoral information available through KRA's iTax (domestic IT) system, which tends to be poor.[32] This is because sectoral information is perceived to be more interesting for the Kenyan National Bureau of Statistics than KRA. Little care is given when filling the industrial division (3-digit international standard industrial classification

[32] Interviews with officials from KRA.

(ISIC)) and industrial group (4-digit ISIC) information at registration.[33] Analysis of data from the fisheries and aquaculture sectors shows this to be the case – between 58.6 per cent and 61.8 per cent of taxpayers have a mismatch between 'industrial divisions' and 'industrial group', depending on which of the two criteria is used for data extraction. Hence, there is a clear possibility that some taxpayers simply misclassified their industrial category at registration, and have been excluded from the analysis.

The second explanation has to do with fishers' compliance with their registration obligations, which various stakeholders claimed to be extremely low.[34] This is mainly because fishing is in many cases a traditional occupation. Fishers 'were raised as fishermen; they do not approach the profession with a commercial spirit'.[35] Compliance with registration and licensing requirements is low, and resisted.[36] Neither county governments nor BMUs ask for Personal Identification Numbers (PINs) when fishers register with them, as they fear this will reduce already low compliance levels.[37] A senior member of Alero BMU estimates that only about 20 per cent of their members are likely to have a PIN.[38] Given that counties and BMUs are likely to be the institutional bodies with the most information about activities in the fisheries sector, their decision not to ask for PINs during licensing reduces the usefulness of data in their possession for compliance purposes. Lack of regard for information that could simplify the development of tax compliance strategies for the sector can also be seen with national-level institutions. None of the forms included in the 2024 *Fisheries Management and Development Regulation* ask for PINs. The only exception to this is KMA, which has since 2018 asked boat owners for their PIN during safety assessments of seafaring vessels, which are compulsory for every boat.[39] Given

[33] Interviews with officials from KRA.

[34] Interviews with officials from KRA, KMA, and Mombasa County government, the senior representative of the BMU association, fisher from Alero BMU, and FGD with Mombasa Old Town BMU.

[35] Interview with officials from Mombasa County government.

[36] '[Fishers] have low adaptation to change, and fishing is a culture: 'If my grandfather did not need a license to fish, why should I?' (interview with official from Mombasa County government). 'Why would [fisher] want one [PIN], they would have to file a return every month – most of which would be nil – and be penalised if they don't... [KRA] only come to ask us money for penalties and for non-filing' (interview with fisher from Alero BMU). '[Boat owners] do not want to have anything to do with the KRA: they have to pay excise duty on nets, there are levies on engines, the import tariff on the timber of the boats has been increased – this is enough for them' (interview with senior representative of BMU association).

[37] Kenyans accruing any amount of income have to possess a PIN.

[38] Interviews with officials from Mombasa and Homa Bay County governments, and fishers from Alero BMUs.

[39] Interview with official from KMA. However, it must be noted that there are currently no inter-agency information protocols between the KRA and KMA that allow this information to be shared.

this general situation, it is not surprising to find so few taxpayers on the KRA's register.

However, registration for tax purposes is not the only obligation for which compliance is limited. As shown in Table 5.1, very few taxpayers in the sector actually paid tax in any given year. The reason for the discrepancy between the two parts of Table 5.1 is again related to the poor quality of data about industrial classification in KRA's iTax system. This makes it hard to determine precisely how many taxpayers ever paid tax, and how much is collected from the sector. Given that there were at most 227 unique PINs making a payment between 2016 and 2022 – 8.28 per cent of those registered in the sector – it is clear that compliance is as low with post-registration obligations as it is with registration. Not surprisingly, compliance rates are quite varied across taxpayer categories. Taxpayers who regularly pay are those managed by the Large Taxpayers Office, and 71.4 per cent of those managed by the Medium Taxpayers Office. It drops significantly after that.[40] On the other hand, none of the 583 individual taxpayers in fisheries and aquaculture made a single tax payment in the period. The analysis of administrative data confirms KRA stakeholders' opinion that issues in the sector lie with small individually owned companies, whose owners equate 'tax payment as their own losses', and individual fishers, who do not carry out proper bookkeeping, and deal in cash with fish traders at the beach.[41] KRA officials recognise that it is unlikely that individual fishers earn enough to reach the tax threshold. Enforcement efforts should be directed towards those who sell fish in bulk to restaurants or fish processing companies.[42] Boat owners should be added to this category, as they are probably the most profitable actors in the sector.[43]

[40] Only 25.4 per cent and 18.7 per cent of taxpayers managed by the Mombasa and Nairobi Tax Offices respectively ever make a payment. This falls to 4.7 per cent among those managed by smaller tax offices.

[41] Interviews with KRA officials.

[42] Interviews with KRA officials.

[43] Interviews with senior representative of the BMUs association and fishers from Alero BMU.

Table 5.1 No. of taxpayers making at least 1 tax payment each year, and total revenue collected from domestic taxes, ISIC 3 and ISIC 4 data extraction

Year	Industrial division (ISIC 3)		Industrial group (ISIC 4)	
	Unique PIN	Total revenue (KSh)	Unique PIN	Total revenue (KSh)
2016	35	141,265,674	58	231,352,314
2017	37	148,930,586	57	334,225,891
2018	46	218,096,856	72	359,948,878
2019	40	246,109,531	88	298,737,718
2020	51	178,551,398	99	266,836,246
2021	53	197,127,136	111	336,732,430
2022	50	239,922,799	138	434,327,313

Source: Authors' analysis of KRA data from the iTax system.

Finally, we should acknowledge the possibly significant loss of revenue from the fisheries and aquaculture sectors through tax expenditure. The exact amount of revenue foregone to support development of these sectors is currently unknown. While Kenya recently started publishing tax expenditure reports, the information contained is too aggregated to help. Direct computation is also challenging, due to the way in which this expenditure is coded in law. For example, the East African Community Customs Management Act grants exemption on '[i]mported inputs and implements by persons engaged in horticulture, aquaculture, agriculture or floriculture **as recommended by the responsible Minister in a Partner State and subject to conditions**' (emphasis added).

Some domestic exemptions are similarly phrased, with the Finance Act No. 8 of 2021, s. 27(a)(xxv), granting VAT exemptions on taxable supplies including 'fish feeding and handling, water operations, cold storage, fish cages, pond construction and maintenance, and fish processing and handling, imported or purchased for direct and exclusive use **on the recommendation of the relevant state department**' (emphasis added).

As can be seen, in both these cases line ministries have significant discretionary power to decide who qualifies for an exemption, and exactly what can be exempted. Apart from reducing the transparency and accessibility of these fiscal incentives, better-connected firms are more likely to have a significant share of their inputs exempted.[44] This discretion also makes the computation of tax expenditure extremely difficult, as it does not lead to standardised reporting. Rather, quantifying tax expenditure requires obtaining proof of all ad hoc requests

[44] Interview with official from KMFRI.

granted by ministries and state departments, or sifting through individual import transactions from the customs system.

Nonetheless, attempting this quantification indicates that the expenditure could be quite substantial. Table 5.2 below shows that, between 2017 and 2021, 58.4 per cent of the import duties and import VAT owed by six selected taxpayers was exempted, amounting to a tax expenditure of KSh76.6 million. Over the course of 2022-2023, 27.4 per cent of import duties and import VAT due by six selected taxpayers (three of which were also included in the previous period) were exempted, for a total of KSh54.2 million. These figures only cover import duties and import VAT, and say nothing about tax expenditure arising from corporate income tax holidays, or capital and investment deductions, which are even harder to assess.

Table 5.2 Import duty and import VAT exemptions 2017-2023, selected taxpayers

	2017-2021			2022-2023		
	Tax remitted	**Tax computed**	**Exemp-tions (%)**	**Tax remitted**	**Tax computed**	**Exemptions (%)**
Taxpayer 1	370,304	589,053	37.14	-	-	-
Taxpayer 2	12,289,464	28,466,688	56.83	6,483,042	11,074,586	41.46
Taxpayer 3	181,110	772,027	76.54	-	-	
Taxpayer 4	41,503	1,137,351	96.35	-	-	
Taxpayer 5	41,141,338	99,189,847	58.52	126,681,112	170,179,479	25.56
Taxpayer 6	649,356	1,155,854	43.82	5,126,010	8,515,110	39.80
Taxpayer 7	-	-	-	826,830	2,798,782	70.46
Taxpayer 8	-	-	-	4,163,304	4,852,168	14.20
Taxpayer 9	-	-	-	703,318	798,100	11.88
Total	54,673,075	131,310,820	58.36	143,983,616	198,218,225	27.36

Source: Authors' elaboration on data from Simba and ICMS systems.

6. Ways to increase compliance, raise more revenue, and manage fisheries better

The preceding discussion shows that fiscal instruments applying to the fisheries sector are currently used in a sub-optimal way, both for management and raising revenue. There are varied reasons for this, ranging from counties wrongly believing licences to be revenue-raising instruments, to KRA's poor data management and enforcement practices. There are some ways to improve this situation. Not surprisingly, most of them involve improving the institutional set-up of the sector, which Mudliar and O'Brien (2021) also highlight. The vast majority of these have also been recognised by the Kenyan Government in a regulatory impact assessment published as our study was finalised (Republic of Kenya 2024b), which provides hope for some positive developments.

First, there is a clear need to clarify and streamline the competences of the various government agencies with management responsibility over the sector, as there is widespread confusion as to who exactly has to do what.[45] This could take various forms, but a couple of things seem necessary. First, the difference between 'fisheries' and 'fishing' needs to be clarified, including in the terminology used by the Act. This let county governments know exactly what they are responsible for, and fishers who they should ask for particular services. Additionally, a more structured forum for coordinating all institutions involved is probably required. The last time that all sectoral actors got together the impetus came from BMUs, who wanted to understand on what legal grounds counties had started levying from the sector. This was an ad hoc effort.[46] One of the regulations gazetted in March 2024 seeks to 'facilitate proper consultation between the County… and the National Government on matters that promote fisheries management' (Republic of Kenya 2024c: 39). Coordination between different levels of government in devolved matters often proves challenging (Martinez-Vasquez *et al.* 2017), so it remains to be seen whether the new regulation will help to improve coordination.

Second, and connected to the need for better coordination, harmonising the data collected by various management agencies should be a priority. This will allow a

[45] Interviews with officials from KFS, KMFRI, and Mombasa County government, with the senior representative of the BMUs association, with fishers from Alero BMU, and from FGD with Mombasa Old Town BMU.

[46] Interviews with officials from Mombasa County governments, the chairman of the national BMUs association

holistic view of the sector's activities, and facilitate action for compliance. This is true for both fiscal-related data and catch-related data. Currently, data on catches is collected by both BMUs and KFS, and data on the number of active boats by KMFRI, KFS, and KMA through licensing. However, all the latter institutions lack funding to carry out official surveys of fisheries' stocks and economic actors, which should in theory underpin the development of a management strategy for each water body.[47] Similarly, BMUs are aware that the data they collect on catches could help support sectoral development, but they have little incentive – and even less institutional support – to improve their current practices.[48] Better catch- and boat-level data would lead to better data on county-level charges. These originate from vessel licences and fish cesses, and could, in turn, reduce the counties' lack of incentive to ask for PINs from the various actors they monitor and manage. Again, the recently gazetted regulations seek to improve this by explicitly tasking BMUs with collecting data on catches from their members. However, this responsibility does not come with any associated increase in capacity to raise revenue (Republic of Kenya 2024b, c). It is not at all clear whether any actual change will follow their implementation.

Third, and following better overarching data on sectoral activities, there should be an attempt to understand the total fiscal burden faced by different actors in the sector, as well as the total amount collected from the many charges theoretically collected for management. Many fishers complain that too many institutions tax them,[49] and they already face a significant fiscal burden. There was some recognition that excessive fiscal pressure might be leaving too little in fishers' pockets. This might also contribute to overfishing,[50] although the boat owners' desire for profit is probably a stronger determinant.[51] Nonetheless, it was evident that, to most fishers interviewed, all levies and charges paid qualify as taxes, regardless of who is levying them. It seems likely that part of the reason for low compliance with tax obligations could be the perception that they are already contributing enough. This is especially relevant now that the charges included in

[47] Interviews with officials from KFS and KMFRI. The increased complexity of carrying out survey frame in a context of decreasing funding was also commented on by the senior representative of BMUs association.

[48] 'No one comes to the beach to do data management though – we come to fish!…I know that the data we provide is the only thing that can inform policy, and can help our case. But the government is not investing much in data collection. You count on me to report the data, but you do not buy me a scale, so any secretary can cook the books upwards or downwards depending on their objective' (interviews with fishers from Alero BMU).

[49] 'We have to license with everyone, everyone sends their staff to the BMUs, everyone stops us to check us… everyone wants to take money from the fishermen - but no one is investing enough in [the sector]' (interview with the senior representative of BMUs association). 'KMA, KFS, and the coast guard are all patrolling the lake; all of these actors are active in the sector, all of these actors are asking of us' (interviews with fishers from Alero BMUs, FGD with Mombasa Old Town BMU).

[50] Interview with official from KMFRI.

[51] Interview with the senior representative of the BMUs association.

The Marine Fisheries Regulations 2024 and *The Fish Levy Trust Fund Order, 2024* have come into force, as all charges in these regulations will impinge on areas already subjected to charges.

Fourth, it can be argued that there needs to be more investment in the sector to increase its revenue potential, and facilitate its management. Many stakeholders complained about the lack of basic amenities, service delivery, financial support to develop post-harvest activities, and training and capacity-building.[52] They would like the government to invest more in all of these. The government recognises all these challenges, and they were explicitly mentioned as one of the reasons behind the eventual promulgation of the long-waited regulations of 2024 (Republic of Kenya 2024b). Getting a better understanding of where management responsibility lies across various institutions, and how much actors from the sector are already paying to each, seems a necessary precondition to determining whether the level of investment in the sector's management matches its contribution. Even where this is already the case, as previously mentioned, often fisheries sectors around the world are net fiscal receivers, so additional funding might still be needed from general government revenue. Given the issues described with existing exemptions, and different stakeholders doubting whether they are appropriately targeted,[53] funding might already be available. It would only need to be redirected towards more efficient uses.

Finally, this increased investment should precede, or at least be at the same time as, any attempt to enforce sectoral compliance. Various fishers expressed quite antagonistic views of KRA,[54] and maintained that the national government is doing little to support their activities and livelihood. Given the likelihood that much of their income might be below the taxable threshold,[55] KRA should prioritise sensitisation and encourage voluntary compliance. The growing literature on mass tax registration campaigns shows that they rarely deliver on their promised benefits (Moore 2023; Gallien *et al.* 2023). While these studies do not focus on sector-specific registration drives, their results are likely to be valid for this case. While the temptation of indiscriminately registering all artisanal fishers for tax

[52] Interviews with officials from Homa Bay County and KMFRI, fisher from Alero BMU, the senior representative of BMUs association, and FGD with Mombasa Old Town BMU.

[53] Interviews with official from KFS, fishers from Alero BMU, and FGD with Mombasa Old Town BMU.

[54] '*You cannot see our turnover because we are enemy. We do not normally have a long conversation with the KRA, because they will look at my catch and then ask to implement a lifestyle audit.*' '*The mentality of the KRA is the mentality of the old Kenyan Police: have you paid? This is what you have to pay, if you don't pay, this is the penalty, I'll chase you! If you don't pay, I'll arrest you!*'. '*We wanted electricity at one of the BMUs, as well as a bank account: we walked into a cybercafé to get a PIN, and after a while we got millions of shillings in penalties for non-filing – who told us that we had to nil-file? Who told the KRA that we watch TV, or that we read newspapers? Who has ever seen a KRA official?*' (interviews with fishers from Alero BMU, as well as interview with the senior representative of the BMU association).

[55] Interviews with officials from the KRA.

purposes should be avoided, there is an argument for more targeted interventions.

Many of the problems associated with the use of the term 'informal sector' (Gallien 2024) mirror those of the term 'artisanal fisheries', which contain very heterogenous actors (Smith and Basurto 2019; March and Failler 2022). In Kenya, boat owners and fish traders were frequently identified as those earning most profit in artisanal fisheries, accruing very significant income from their 'small-scale' activities.[56] Actions to increase their tax compliance seem well-justified. At least in the case of boat owners, there also is a very real possibility that many of them could be identified through data collected by KMA, which includes their PINs.[57] Additionally, both county governments and BMUs should have information about fish traders, although in this case the data would not include a PIN. Institutional structures for data sharing are not currently in place, and data exchange relies on goodwill, upon request.

Given this, we need to ask if there is the necessary political will to embark on these reforms. The fact that the current set-up of the fisheries sector, dysfunctional as it might be, has been in place for almost a decade, could imply that someone stands to gain from it. According to one interviewee, many politicians at the county level gain from the legislative confusion, as they could promise their constituents unlimited fish harvests. At the same time counties could set-up parallel licensing structures, granting them revenue.[58] The Kenyan Constitution requires extensive stakeholder consultation for almost any proposed change in legislation. It was on the grounds of insufficient consultation about banned artisanal fishing methods that the Act was held up in court in 2023, with the challenge allegedly backed by a politician from a coastal fishing area.[59] It was through this consultation that the regulations stalled. It gave counties a platform to push back on any attempted reform, in order to protect both particular interests and a source of revenue.[60] It also did not help that most fishing activities take

[56] Interviews with officials from KRA, KMFRI, Mombasa County government, fisher from Alero BMU and the chairman of the national BMUs association.

[57] Interview with official from the KMA.

[58] 'Politicians look at the features of their voters and protect them by any means. So, if anything is supposed to be changed that affects their voters in terms of harvesting as much as they can from the sea or the lakes, they will object' (interview with official from KFS).

[59] Interview with KFS official.

[60] *'There has been a push and pull between the counties and the national government, because public participation is key in our constitution. When the counties, the fishers and the politicians at the county level see a step forward in the process of attaining new regulations, they pull us back'* (interview with KFS official).

place in areas perceived as hostile to the national government's ruling party. This reduced the need to finally complete the sectoral regulation.[61]

Nevertheless, the new regulations were finally approved in early 2024. This demonstrates that, after a long wait, political interests are sufficiently aligned to allow some action in the sector.[62] Much of the impetus behind promulgation of the regulations seems to originate from cabinet, which suggests that these sectoral issues have gained more political prominence.[63] There is now a political window to continue addressing regulatory shortcomings, many of which have been recognised by the government (Republic of Kenya 2024b). While the promulgation of this new set of regulations is a significant first step, they do not address many of the problems highlighted in this study. It is clear that more work can be done to improve the sustainability of the sector.

[61] Interview with official from KMFRI.

[62] Interview with official from KMFRI.

[63] Interview with official from KMFRI.

7. Conclusion

The Kenyan Government has identified the fisheries sectors as having significant potential for development since the early 2000s (Republic of Kenya 2007). While the sector employs over a million people, as well as earning some foreign exchange (KMFRI 2018), its contribution to GDP seems to have remained the same as what was reported in the 2000s (Ministry of Fisheries Development 2008). This is despite an apparently sizeable increase in the number of people employed in the sector (Ardojosoediro and Neven 2008). The likely reason for this discrepancy is poor data quality, which contributes to a significant underestimation of the catch (KMFRI 2018). This makes fisheries management quite problematic, as neither the exact number of boats, nor the exact number of active actors, is known.

Among the information currently lacking is the amount regularly collected from the sector as revenue from general fiscal legislation or the many charges levied by county governments and other management bodies (KMFRI 2018). This is problematic, as it contributes to both underestimating fisheries' economic value, and makes creating policies to support their development more complex. Many levies from the sector are supposed to directly fund its management, or be barriers to entry. In these cases, the lack of revenue data directly translates into lack of management data. It is necessary to gain a better understanding of whether the tax treatment of fisheries contributes to their sustainable management, and to mobilise an appropriate amount of revenue.

The results of our analysis show that neither of these goals is currently being achieved. The devolution of fisheries management in the 2010 constitutional reform, and the *Fisheries Management and Development Act of 2016*, introduced new players in the sector's management – the county governments and KFS – but did little to clarify the exact division of roles between them. KFS, the main national body overseeing fisheries' organisations and development, is struggling to collect enough revenue to carry out its overarching mandate. This is in part because some of the regulations underpinning its capacity to levy from fishers have only been gazetted in the last few months. Counties have introduced various charges and fees on many aspects of fisheries activities, but often see these as a source of general revenue, rather than a management tool. As they lack a clear sense of their stewardship responsibilities, how much they reinvest in the sector seems to be more connected to its local economic relevance than to clear management plans. BMUs, who have been acting on long-repealed regulations that were only recently replaced, dedicate all the funds they collect to management activities, but are seeing many other institutions encroach on their revenue base.

On the other hand, KRA has not prioritised compliance from a sector that is geographically dispersed, and in which many actors are likely to fall below the income tax threshold. Analysis of tax administrative data – notwithstanding issues with ISIC codes, which should be solved in their own right – shows that the number of registered taxpayers from fisheries and aquaculture is a small proportion of the economic actors estimated to be active in these sectors, Those who make a tax payment are a small percentage of those registered – showing very low tax compliance. It is challenging to assess whether fiscal incentives towards the sector, such as tax exemptions, are doing much for its development, and to quantify the revenue foregone. This is because they are granted on a poorly defined set of inputs and in a highly discretionary manner – approval from line ministries, rather than automatic qualification, is at their base.

There is ample room to increase the effectiveness of the fisheries' tax treatment from both a revenue and management perspective:

- The institutional mandate of different levels of government should be clarified to minimise overlapping mandates.
- The recently gazetted regulations should be enforced and built upon to provide further clarity.
- A forum should be established to coordinate national agencies, county governments, and BMUs, and ensure that the information collected by each of these institutions is shared.

This would finally provide an overview of the total collection from fisheries, which could be used to develop effective management plans. This will also help to understand the total fiscal burden faced by different economic actors in the sector, which can inform a compliance strategy for KRA. The latter should probably start with extensive sensitisation, and review their enforcement action on boat owners and fish traders (identified as those with higher profits), rather than focusing on mass registration of fishers.

Without this set of actions, it seems unlikely that fisheries will be able to contribute to national development in the way that has long been envisaged by the Kenyan government.

Appendices

Appendix 1

Table A1.1 Fisheries charges, Mombasa County Bills 2020

No.	Particulars	2020/21
	101. REGISTRATION OF LOCAL FISHING VESSELS	
1022	A-Non-mechanised fishing vessels	KSh200
1023	B-Mechanised fishing vessel	KSh200
	102. FISHERMEN AND SPORT FISHING LICENCES	
	Fisherman's licence	
1024	Class A - Fisherman not using any craft	KSh200
	Class B - Fisherman using non-mechanised vessel:	
1025	Vessel not exceeding 5 (five) metres length	KSh200
1026	Vessel exceeding 5 (five) metres length	KSh200
	Class C	
	Fisherman using mechanised vessel:	
1027	Vessel of more than 5 (five) metres length and 1½ (one and half) metres beam.	KSh200
	Sport fishing licence	
1028	Annual licence	KSh3,000
1029	Monthly licence	KSh1,000
1030	Fortnightly licence	KSh500
	Miscellaneous licences/certificates:	
1031	Aquarium fish dealer's licence per annum	
	Crustacea dealers licence: per annum	
1032	Wet	KSh2,000
1033	Dry and live crabs	KSh1,000
	Fish movement permit for:	
	(1) Vehicle	
1034	(a) Not exceeding 3 (three tones) per trip	KSh500
1035	(b)Exceeding 3 (three tones)per trip	KSh1,000
	(2) Boats	
1036	(a) Not exceeding 10 per trip	KSh1,000
1037	(b) Exceeding 10 per trip	KSh5,000
1038	(3) Luggage accompanying trader using public passenger carrier vehicle per trip	KSh100

1030	Fish processing licence per annum - fish	KSh2,000
	Shops	
1040	Fish processing licence per annum - small and medium fish	KSh5,000
	Factories	
1041	Fish processing licence per annum - large fish factories	KSh10,000
1042	Fish export fee at 0.5% (zero point five per cent)	N/A
	Ad valorem of market price per trip	
1043	7 tonnes and above lorry	KSh200
1043	Fish trader licence per annum	KSh200
1044	Beche-De-Mer trading licence per annum	KSh100
1045	Shell dealers licence	KSh3,000
1046	Shell collectors licence	KSh200
1047	Registration of a Fishing Club/Association	KSh5,000
1048	Boat operation charges	15 per kg of fish

Source: Kenya Gazette Supplement No. 10 (Mombasa County Bills No. 6), MOMBASA COUNTY BILLS, 2020, NAIROBI, 30 November 2020.

Table A1.2 Fisheries charges, Homa Bay County Bills 2020

Market user charges	**2020 /202l charges (KSh)**	
Fish (omena) one trough (approx 10 kg) and below		10
Fish omena (half a sack) (approx 20 kg)		30
Fish omena full basket (approx 50 kg)		60
Fish Omena extra lull size (approx 90 kg)		100
Nile perch one trough (approx 10 kg)		20
Nile perch hall basket (approx 20 kg)		50
Nile perch tull basket (approx 50 kg)		80
Nile perch extra full basket (approx 70 kg)		200
Tilapia one trough (approx 10 kg)		40
Tilapia half a basket (approx 25 kg)		80
Tilapia full basket (approx 30 kg)		100
Tilapia full basket (approx 50 kg)		150
Tilapia full basket (leaving Homa bay county) (approx 50 kg)		200
Nile perch per ton (1,000 kg)		2,000
Other fish species one trough (approx 10 kg)		30
Other fish species half basket (approx 20 kg)		100
Otherfish species full basket (approx 50 kg)		150
Fisheries charges		
Sale of aquatic fish		
Sale of aquatic fish 6-10 cm long	Per fish	20
Sale of aquatic fish 11-15 cm long	Per fish	20
Sale of aquatic fish 16 cm and above	Per fish	30
Annual licence		
Fish processing	Annually	3,000
Fishing camp	Annually	20,000
Sport fishing	Up to two weeks	200
Sport fishing	Per month	500
Sport fishing	Per year	1,000

Source: Kenya Gazette Supplement No. 14 (Homa Bay County Bills No. 5), HOMA BAY COUNTY BILLS, 2020, NAIROBI, 28th September 2020

Table A1.3 Alero BMU fees

S/No	Activity	Fees in KShs	Frequency
1	Application fees	500	Once
2	Membership fees	100	Once
3	Annual registration/membership	130	Annually
4	Vessel registration	150	Annually
5	Landing fees • Members • Non-members	 • 2 • 4	Per kg
6	Truck loading fees • Members • Non-members	 • 300 • 500	Per day
7	Gear counting fee	50	Per vessel per quarter
8	Plot allocation	500	Per 10 foot
9	Toile maintenance	10	Weekly

Source: Authors' translation from Alero BMUs by-laws, unpublished.

Table A1.4 Kilifi BMU fees

S/No	Activity		Fees in Ksh	Frequency
1	Membership fees		200	Once
2	Persons undertaking any business at the beach (groups)	Registration	1,000	Once
		Renewal	500	Annually
3	Persons undertaking any business at the beach (Individuals)	Registration	200	Once
		Renewal	200	Annually
4	Placing a container for any trade at the beach e.g. hotels, fish trucks, trucks for goods (foodstuffs, stones, etc.)		100,000	Monthly
5	Restaurants (tents), open markets		30,000	Annually
6	Setting up lobster traps		6,000	Annually
7	Vessel docking for loading or unloading cargo/fish(non-members)		6,000	Per trip
8	Boat repairers a. Local member – 1500 b. Non-members (1- 5 tonnes capacity) – 5,000 c. Non-members, 5 tonnes and above – 10,000		 a. 1,500 b. 5,000 c. 10,000	Once
9	Freezer/cooling plant charges		a. KSh5 per kg for 24 hours b. Ksh10 per kg for non-members for 24hrs	
10	Any random traders at the beach		10	Daily
11	Docking		1,000	Per trip
12	Fish landing - members		3	Per kg
	Fish landing - non-members		5	Per kg
13	Lobster landing – KSh10 per kg		10	Per kg
14	Crab landing – KSh5 per kg		5	Per kg
15	Vehicles parked at the beach – KSh250		250	Daily

Source: Authors' translation from Kilifi BMUs by-laws, unpublished.

References

Ardjosoediro, I. and Neven, D. (2008) *The Kenya Capture Fisheries Value Chain: An AMAP-FSKG Value Chain Finance Case Study*, microREPORT #122, USAID

Arnason, R.; Hannesson, R. and Schrank,W.E. (2000) 'Costs of fisheries management: The cases of Iceland, Norway and Newfoundland', *Marine Policy* 24(3): 233–243

Arthur, R.; Heyworth, S.; Pearce, J. and Sharkey, W. (2019) *The cost of harmful fishing subsidies*, IIED Working Paper, London: IIED

Belhabib, D. *et al.* (2015) 'Euros vs. Yuan: Comparing European and Chinese Fishing Access in West Africa', *Plos ONE* 10(3): e0118351

Béné, C. *et al.* (2016) 'Contribution of Fisheries and Aquaculture to Food Security and Poverty Reduction: Assessing the Current Evidence', *World Development* 79:177–196

Béné, C.; Hersoug, B. and Allison, E.H. (2010) 'Not by Rent Alone: Analysing the Pro-Poor Functions of Small-Scale Fisheries in Developing Countries', *Development Policy Review* 28(3): 325–358

Béné, C. *et al.* (2009) 'Power Struggle, Dispute and Alliance Over Local Resources: Analyzing 'Democratic' Decentralization of Natural Resources through the Lenses of Africa Inland Fisheries', *World Development* 37(12): 1935–1950

Béné, C. *et al.* (2003) 'Natural-resource institutions and property rights in inland African fisheries: The case of the Lake Chad Basin region', *International Journal of Social Economics* 30(3): 275–301

Cinner, J.E. and McClanahan, T.R. (2015) 'A sea change on the African coast? Preliminary social and ecological outcomes of a governance transformation in Kenyan fisheries', *Global Environmental Change* 30(5): 133–139

Clark, C.W. (1980) 'Towards a Predictive Model for the Economic Regulation of Commercial Fisheries', *Canadian Journal of Fisheries and Aquatic Science* 37(7): 1111–1129

Cunningham, S.; Neiland, A.E.; Arbuckle, M. and Bostock, T. (2009) 'Wealth-based Fisheries Management: Using Fisheries Wealth to Orchestrate Sound Fisheries Policy in Practice', *Marine Resource Economics* 24(3):271–287 de Graaf, G. and Garibaldi, L. (2014) *The Value of African Fisheries*, FAO Fisheries and Aquaculture Circular No. 1093, Rome: Food and Agriculture Organisation

Etiegni, C.A.; Irvine, K. and Kooy, M. (2017) 'Playing by whose rules? Community norms and fisheries rules in selected beaches within Lake Victoria (Kenya) co-management', *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development* 19(4): 1557–1575

FAO (2020) *The State of World Fisheries and Aquaculture 2020: Sustainability in Action*, Rome: Food and Agriculture Organisation

Gallien, M. (2024) *Measurement and Mirage: The Informal Sector Revisited*, IDS Working Paper 599, Brighton: Institute of Development Studies, DOI: 10.19088/IDS.2024.005 (accessed: 7 August 2024)

Gallien, M.; Occhiali, G. and van den Boogaard, V. (2023) *Catch Them If You Can: the Politics and Practice of a Taxpayer Registration Exercise*, ICTD Working Paper 160, Brighton: Institute of Development Studies, DOI: 10.19088/ICTD.2023.012 (accessed: 7 August 2024)

Geheb, K. *et al.* (2008) 'Nile perch and the hungry of Lake Victoria: Gender status and food in East African fisheries', *Food Policy* 33(1): 85–98

Gordon, H.S. (1954) 'The economic theory of a common-property resource: The fisheries', *Journal of Political Economy* 62(5): 124–142

Gunnlaugsson, S.B. and Saevaldsson, H. (2016) 'The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system', *Marine Policy* 71: 73–81

Gunnlaugsson, S.B.; Kristofersson, D. and Agnarsson, S. (2018) 'Fishing for a fee: Resource rent taxation in Iceland's fisheries', *Ocean and Coastal Management* 163: 141–150

Hannesson, R. (2005) 'Rights based fishing: Use rights versus property rights to fish', *Reviews in Fish Biology and Fisheries* 15(3): 231–241

Jul Larsen, E. (2003) 'Analysis of effort dynamics in the Zambian Inshore fisheries of Lake Kariba, in Management, Co-management or No Management?', in: J. Larsen, J. Kolding, R. Overá, J.R. Nielsen and P. A.M. van Zwieten (eds) *Management, Co-Management or no Management? Major dilemmas in southern African freshwater fisheries*, Rome: Food and Agriculture Organization

Kaczynski, V.M. and Fluharty, D.L. (2002) ‘European policies in West Africa: Who benefits from fisheries agreements?’, *Marine Policy* 26(2): 75–93

Kimani, P.; Wamukota, A.; Manyala, J.O. and Mlewa, C.M. (2020) ‘Actors’ perceptions of government performance in support of value chain development in marine small-scale fisheries in Kenya’, *Marine Policy* 122: 104221

KFS (2023) ‘Fisheries Statistical Bulletin 2022’, *Kenya Fisheries Services*

KMFRI (2018) *The Status of Kenya Fisheries. Towards Sustainable Exploitation of Fisheries Resources for Food Security and Economic Development*, Kenya Marine and Fisheries Research Institute

March, A. and Failler, P. (2022) ‘Small-scale fisheries development in Africa: Lessons learned and best practices for enhancing food security and livelihoods’, *Marine Policy* 136: 104925

Martinez-Vasquez, J.; Lago-Peñas, S. and Sacchi, A. (2017) ‘The Impact of Fiscal Decentralisation: A Survey’, *Journal of Economics Surveys* 31(4): 1095-1129

Matsue, N.; Daw, T. and Garrett, L. (2014) ‘Women fish traders on the Kenyan coast: Livelihoods, bargaining power, and participation in management’, *Coastal Management* 42(6): 531–554

Menza, S.J. and Mange, D. (2020) ‘Analysing the Challenges Faced by Beach Management Units in Managing Fisheries Stock in Mombasa County, Kenya’, *International Academic Journal of Social Sciences and Education* 2(2): 137-165

Merayo, E.; Porras, I.; Harper, S.; Steele, P. and Mohammed, E. (2019) *Subsidy reform and distributive justice in fisheries*, IIED Working Paper, London: IIED

Ministry of Fisheries Development (2008) *National Ocean and Fisheries Policy 2008*, Republic of Kenya

Moloney, D.G. and Pearse, P.H. (1979) ‘Quantitative rights as an instrument for regulating commercial fisheries’, *Journal of the Fisheries Research Board of Canada* 36(7): 859–866

Moore, M. (2023) ‘Tax obsessions: Taxpayer registration and the “informal sector” in sub-Saharan Africa’, *Development Policy Review* 41(1): 12649

Morey, E.R. (1980) ‘Fisheries economics: An introduction and review’, *Natural Resource Journal* 20(4): 827–851

Mudliar, P. and O'Brien, L. (2021) 'Crowding-out lower-level authorities: Interactions and transformations of higher and lower-level authorities in Kenya's polycentric fisheries', *Environmental Science and Policy* 118: 27-35

Munro, G.R. (2010) *From drain to gain in capture fisheries rents. A synthesis study*, FAO Fisheries and Aquaculture Technical Paper 538, Rome: FAO

Murunga, M.; Partelow, S. and Breckwoldt, A. (2021) 'Drivers of collective action and role of conflict in Kenyan fisheries co-management', *World Development* 141: 105413

Nunan, F. (2020) 'The political economy of fisheries co-management: Challenging the potential for success on Lake Victoria', *Global Environmental Change* 63: 102101

Nunan, F. (2014) 'Wealth and welfare? Can fisheries management succeed in achieving multiple objectives? A case study of Lake Victoria, East Africa', *Fish and Fisheries* 15(1): 134–150

Nunan, F.; Hara, M. and Onyango, P. (2015) 'Institutions and co-management in East African Inland and Malawi fisheries: A critical perspective', *World Development* 70: 203–21

Occhiali, G. (2023) 'What's the Catch? A Review of the Fiscal Treatments of Fisheries in Sub-Saharan Africa', *Journal of Environment and Development* 32(2): 192-217

Ogendi, P.O. (2020) 'An overview of the Fisheries Resources Institutions in Kenya', *Kabarak Journal of Law and Ethics* 5: 101-126

Okafor-Yarwood, I. and Belhabib, D. (2020) 'The duplicity of the European Union Common Fisheries Policy in third countries: Evidence from the Gulf of Guinea', *Ocean and Coastal Management* 184: 104953

Prichard, W. and van den Boogaard, V. (2017) 'Norms, Power and the Socially Embedded Realities of Market Taxation in Northern Ghana', *African Studies Review* 60(1): 171-194

Republic of Kenya (2024a) *The Fisheries Management and Development Regulation 2024*, Republic of Kenya

Republic of Kenya (2024b) *The Fisheries Management and Development Regulation – Regulatory Impact Statement*, Republic of Kenya

Republic of Kenya (2024c) *Fisheries Management and Development Act, Cap 378, Laws of Kenya – Explanatory Memoranda*, Republic of Kenya

Republic of Kenya (2016) *The Fisheries Management and Development Act 2016*, Republic of Kenya

Republic of Kenya (2010) *The Constitution of Kenya 2010*, Republic of Kenya

Republic of Kenya (2007) *Kenya Vision 2030 – A Globally Competitive and Prosperous Kenya*, Republic of Kenya

Ribot, J. (2003) 'Democratic decentralisation of natural resources: Institutional choice and discretionary power transfers in sub-Saharan Africa', *Public Administration and Development* 23(1): 53–65

Scott, A. (1955) 'The fisheries: The objectives of sole ownership', *Journal of Political Economy* 63(2): 116–124

Seto, K. (2017), 'West Africa and the New European Common Fisheries Policy: Impacts and Implications', in C. Espósito, J. Kraska, H.N. Scheiber, and M.S. Kwon (eds) *Ocean law and policy: Twenty years of development under the UNCLOS regime*, Boston: Nijhoff Brill

Smith, H. and Basurto, X. (2019) 'Defining Small-Scale Fisheries and Examining the Role of Science in Shaping Perceptions of Who and What Counts: A Systematic Review', *Frontiers in Marine Science* 6

Sumaila, U.R. *et al.* (2019) 'Updated estimates and analysis of global fisheries subsidies', *Marine Policy* 109: 103695

Sumaila, U.R.; Vicky, L.; Le Manach, F.; Swartz, W. and Pauly, D. (2016) 'Global fisheries subsidies: An updated estimate', *Marine Policy* 69: 189–193

Sumaila, U.R. *et al.* (2010) 'A bottom-up re-estimation of global fisheries subsidies', *Journal of Bioeconomics* 12(3): 201–225

Tipping, A. (2020) *Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A discussion paper by IISD*, International Institute for Sustainable Development Discussion Paper

Tipping, A. and Irschingler, T. (2021) *WTO negotiations on fisheries subsidies update: What's the state of play*, International Institute for Sustainable Development Policy Brief

Welcomme, R.L. *et al.* (2010) 'Inland capture fisheries', *Philosophical Transactions of the Royal Society B* 365: 2881–2896

Willmann, R. and Kelleher, K. (2009) *The Sunken Billions: The economic justification for fisheries reform*, World Bank Agriculture and Rural Development

Witbooi, E. (2008) 'The infusion of sustainability into bilateral fisheries agreements with developing countries: The European Union Example', *Marine Policy* 32(4): 669–679

World Bank (2012) *Hidden harvest. The global contribution of capture fisheries*, World Bank Economic and Sector Work Report No. 66469-GLB

World Bank (2004) *Saving Fish and Fishers: Towards Sustainable and Equitable Governance of the Global Fishing Sector*, World Bank Agriculture and Rural Development Department Report No. 29090-GLB

Zeller, D. *et al.* (2020), 'Comparative fishery yields of African Large Marine Ecosystems', *Environmental Development* 36: 100543